

L 17062-63 EPF(c)/EWP(q)/EWT(m)/BDS S/062/63/000/004/006/022
AFFTC Pr-4 RM/WW/JD
AUTHOR: Minsker, K.S., Biryukov, V.I., Grayevskiy, A.I., and Razuvayev,
G.A. 63

TITLE: Interaction Between Aluminum Alkyls and Hydrogen

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk,
no. 4, 1963, 637-640 27

TEXT: The interaction of triethylaluminum with hydrogen on Ziegler type heterogenic complex catalysts was studied. In the gaseous phase of the reaction ethane is accumulated with the simultaneous formation of diethylaluminum hydride. A connection is shown for interaction of triethylaluminum and hydrogen with the effect of molecular hydrogen on the stereospecific polymerization of olefine under the effect of Ziegler catalysts. An analogy was noted in the activation mechanism of olefin and hydrogen molecules on the Ziegler complex catalysts. There are 2 figures.

SUBMITTED: June 19, 1962

Card 1/1

KHIDEKEL', M.L.; YEGORCHKIN, A.N.; PONOMARENKO, V.A.; ZADOROZHNYI, N.A.;
RAZUVAYEV, G.A.; PETROV, A.D.

Nuclear magnetic resonance of silicon hydrides. Izv. AN SSSR.
Otd.khim.nauk no.6:1130-1132 Je '63. (MIRA 16:7)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR.
(Silicon hydrides--Spectra)

L 13545-63 EWP(j)/EPF(c)/EWT(m)/BDS ASD Pc-4/Pr-4 RM/WW
 ACCESSION NR: AP3000689 8/0190/63/005/005/0655/0658 67
 66

AUTHOR: Minsker, K. S.; Fedoseyeva, G. T.; Razuvayev, G. A.

TITLE: The role of the hetero-component in stereospecific polymerization on Ziegler-Natta catalysts

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 5, no. 5, 1963, 655-658

TOPIC TAGS: catalytic activity, hetero-component, stereospecific polymerization, activation of bonds, styrene, TiCl sub 3, CrCl sub 3, propylene, ethylene

ABSTRACT: The present work was carried out because of the scarcity of information on the catalytic performance of the alpha-modification of TiCl sub 3 and the purple and pink modification of CrCl sub 3 in initiating the polymerization of ethylene, propylene, and styrene. The polymerization of ethylene was conducted in metallic reactors, four liters in capacity, that of propylene and styrene in ampules. A nonstereospecific polymerization was obtained, accompanied by the formation of low-molecular reaction products, confirmed by an electronogram. The theory is advanced that activation of the double bond occurs on chemisorption of the monomer by the active heterogeneous catalyst centers. The doubling of the yield in the presence of benzene lends support to this theory. Orig. art. has: 1 table and 1 figure.

Scientific Research Inst. of Chemistry, Gorkiy State U.

Card 1/4

S/079/63/033/001/009/023
D205/D307

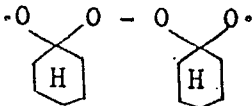
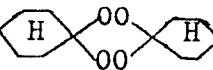
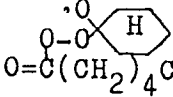

AUTHORS: Razuvayev, G. A., Kirillov, A. I. and Etlis, V. S.
TITLE: Thermal decomposition of bis(1-methylpercarbonylcyclohexyl) peroxide (I)
PERIODICAL: Zhurnal obshchey khimii, v. 33, no. 1, 1963, 131-138

TEXT: The kinetics of the thermal decomposition of I were studied in the range 50 - 85°C, in iso-propanol, cyclohexane, benzene and CCl₄, finding that the reactions were of 1st order; the rate was fastest in the propanol and was approximately equal in the other solvents tested. The overall activation energies were 30.2 (iso-PrOH), 24.5 (cyclo-C₆H₁₂·C₆H₆) and 23.4 kcal/mole (CCl₄). The decomposition products were CO₂, CH₃OH, 6-caprolactone, n-caproic acid, 6-hydroxycaproic acid, and a cyclic cyclohexyl diperoxide. Some interaction with the solvent was observed, obtaining acetone in iso-PrOH, cyclohexene in C₆H₁₂, and hexachloroethane in CCl₄ and CHCl₃.

Card 1/2

Thermal decomposition of ...

S/079/63/033/001/009/023
D205/D307

In the mechanism proposed, I forms  (II), by loss of $2\text{CH}_3\text{OC}(=\text{O})\cdot$ radicals (which decompose to $\text{CH}_3\text{O}\cdot$ and CO_2), which then (a) recombines to give  (V) and (b) gives rise to a new radical  (III). The radical III decomposes in turn to  (IV) and a lactone $\text{O}=\text{C}(\text{CH}_2)_4\text{CH}_2$ (VI), and IV dimerizes to V or goes over to VI. The effects of solvents are discussed. There are 5 figures and 4 tables.

SUBMITTED: February 20, 1962

Card 2/2

RAZUVAYEV, G.A.; PETUKHOV, G.G.; KAPLIN, Yu.A.

Reactions of tetraphenyllead and hexaphenyldiphenylumbane with benzene.
Zhur.ob.khim. 33 no.7:2394-2397 J1 '63. (MIRA 16:8)
(Lead) (Benzene)

RAZUVAYEV, G.A.; GRAYEVSKIY, A.I.

Complexes formed by aluminum alkyls with alcohols. Zhur.ob.khim.
33 no.7:2423-2424 J1 '63. (MIRA 16:8)
(Aluminum organic compounds) (Alcohols)

CHERNYAYEV, I.I., akademik, red.; RAZUVAYEV, G.A., red.; VOL'NOV,
I.I., kand. khim. nauk, red.; DOBRYNINA, T.A., kand. khim.
nauk, red.; DRAGUNOV, E.S., red. izd-va; MAKUNI, Ye.V., tekhn.
red.

[Chemistry of peroxide compounds] Khimiya perekisnykh soedi-
nenii. Moskva, Izd-vo AN SSSR, 1963. 313 p. (MIRA 16:12)

1. Akademiya nauk SSSR. Institut obshchei i neorganicheskoy
khimii. 2. Chlen-korrespondent AN SSSR (for Razuvayev).
(Peroxides)

VYAZANKIN, N.S.; RAZUVAYEV, G.A.; GLADYSHEV, Ye.N.

Bis-(triethylgermyl)mercury, the first organogermanium compound of mercury. Dokl. AN SSSR 151 no.6:1326-1328 Ag '63. (MIRA 16:10)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete im. N.I.Lobachevskogo. 2. Chlen-korrespondent AN SSSR (for Razuvayev).

MINSKER, K.S.; GRAYEVSKIY, A.I.; RAZUVAYEV, G.A.

Polymerization of methyl methacrylate in the presence of organo-
aluminum compounds. Izv.AN SSSR.Ser.khim. no.8:1483-1487 Ag
'63. (MIRA 16:9)

(Methacrylic acid) (Polymerization)
(Aluminum organic compounds)

RAZUVAYEV, G.A.; GALIULINA, R.F.; PETUKHOV, G.G.; LIKHOVIDOVA, N.V.

Oxidation of diphenylzinc and diphenylmagnesium. Zhur.ob.
khim. 33 no.10:3358-3360 0 '63. (MIRA 16:11)

RAZUVAYEV, G.A.; YEGORCHIKIN, A.N.; ETLIS, V.S.; SINEOKOV, A.P.

Study of the reaction of methyl isothiocyanate with ethylene oxide
by the proton magnetic resonance method. Izv.AN SSSR.Ser.khim.
no.8:1518-1521 Ag '63. (MIRA 16:9)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete im. Lobachevskogo.
(Isothiocyanates) (Ethylene oxide) (Spectrum analysis)

RAZUVAYEV, G.A.; GRAYEVSKIY, A.I.; MINSKER, K.S.; BELOVA, M.D.

Oxidation of aluminum alkyls. Dokl. AN SSSR 152 no.1:114-116
S '63. (MIRA 16:9)

1. Chlen-korrespondent AN SSSR (for Razuvayev).
(Aluminum organic compounds) (Oxidation)

RAZUVAYEV, G.A.; PETUKHOV, G.G.; KAPLI', Yu.A.; DRUZHKOVA, O.N.

Reactions of organomercury and organolead compounds studied by the
isotopic and mass-spectrometric method. Dokl. AN SSSR 152 no.5:
1122-1125 0 '63. (MIRA 16:12)

1. Chlen-korrespondent AN SSSR (for Razuvayev).

RAZUVAYEV, G.A.; MINSKER, K.S.; FEDOSEYEVA, G.T.; SHTARKMAN, B.P.

Heterogeneous catalytic polymerization of ethylene in the presence of the metal - metal chloride system. Voskom.soed. 5 no.9:1371-1375 S '63. (MIRA 17:1)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete.

RAZUVAYEV, G.A.; PETUKHOV, G.G.; KUDRYAVTSEV, L.F.; SHUBENKO, M.A.

Reaction of diphenylmercury with toluene. Zhur. ob. khim. 33
no.8:2764-2766 Ag '63. (MIRA 16:11)

RAZUVAYEV, G.A.; BABINOVA, L.M.

Preparation and certain properties of the complex formed by
methyl titanium trichloride and tetrahydrofuran. Dokl. AN
SSSR 152 no. 6, 1363-1364 O '63. (MIRA 16:11)

1. Chlen-korrespondent AN SSSR (for Razuvayev).

MINSKER, K.S.; FEDOSEYEVA, G.T.; RAZUVAYEV, G.A.

Role of the heterogeneous component in stereospecific polymerization taking place in the presence of Ziegler-Natta catalysts.
Vysokom.soed. 5 no.5:655-658 My '63. (MIRA 17:3)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete.

ACCESSION NR: AT4020699

S/0000/63/000/000/0045/0047

AUTHOR: Minsker, K. S.; Kronman, A. G.; Sangalov, Yu. A.; Bort, D. N.; Razuvayev, G. A.

TITLE: Crystalline polyvinyl bromide

SOURCE: Karbotsepy*ye vy*sokomolekulyarny*ye soyedineniya (Carbon-chain macromolecular compounds); sbornik statey. Moscow, Izd-vo AN SSSR, 1963, 45-47

TOPIC TAGS: polymerization, stereospecific polymerization, crystalline polymer, block polymerization, polyvinyl chloride, polyvinyl bromide, butyraldehyde

ABSTRACT: Crystalline polyvinyl bromide was prepared by homogeneous free-radical stereospecific polymerization at room temperature in a butyraldehyde medium. After 5 hours, the yield of polyvinyl bromide was 5-6% with a 0.02% active oxygen content in the aldehyde. The resulting polymer was a white powder with an absolute viscosity of 0.912 cp at 20C in dichlorethane. The absolute viscosity of highly crystalline polyvinyl chloride obtained under the same conditions was 0.939 cp. X-ray patterns of annealed unoriented polyvinyl bromide films obtained by block polymerization and by the polymerization of the monomer in a butyraldehyde solution are given. The maximum degree of crystallinity of polyvinyl bromide was obtained at a molar ratio of monomer to aldehyde = 1 : 1. Addition of water and alcohols to

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ACCESSION NR: AT4020699

the homogeneous stereospecific system produced a strongly amorphous polymer structure. By polymerizing the monomer in ether solutions, a sufficiently high degree of crystallinity could be retained. Orig. art. has: 1 figure.

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete im. N.I. Lobachevskogo (Scientific Research Institute of Chemistry, Gor'kiy State University)

SUBMITTED: 09Apr62

DATE ACQ: 20Mar64

ENCL: 00

SUB CODE: OC

NO REF SOV: 005

OTHER: 003

Card 2/2

BOBINOVA, L.M.; RAZUVAYEV, G.A.

Thermal decomposition of some organotitanium compounds. Zhur.-
ob.khim. 33 no.7:2389-2394 J1 '63. (MIRA 16:8)

1. Gor'kovskiy gosudarstvennyy universitet imeni N.I.Lobachevskogo.
(Titanium organic compounds)

RAZUVAYEV, G.A.; BOGUSLAVSKAYA, L.S.

Reactivity of free hydroxyl radicals in the reaction with aliphatic
esters in solution. Trudy po khim.i khim.tekh. no.1:155-160 '63.
(MIRA 17:12)

RAZUVAYEV, G.A.; MINSKER, K.S.; SANGALOV, Yu.A.; GRAYEVSKIY, A.I.

Initiation of low temperature polymerization of vinyl chloride
by triethylaluminum aided by the cocatalytic action of oxygen.
Dokl. AN SSSR 151 no.1:110-113 J1 '63. (MIRA 16:9)

1. Chlen-korrespondent AN SSSR (for Razuvayev).
(Ethylene polymers) (Aluminum) (Catalysis)

RAZUVAYEV, G.A.; KIRILLOV, A.I.; ETLIS, V.S.

Thermal decomposition of bis[1-alkyl(aryl)-percarbonatecycloalkyl]
peroxides in benzene. Zhur.ob.khim. 33 no.12:3989-3993 D '63.

Thermal decomposition of bis[alkyl(aryl)percarbonatecycloalkyl]
peroxides in isopropyl alcohol. Ibid.:3993-3998 (MIRA 17:3)

ACCESSION NR: AT4028345

S/0000/63)000/000/0283/0290

AUTHOR: Razuvayev, G. A.; Vyazankin, N. S.

TITLE: Reactions of peroxide compounds with ethyl derivatives of tin, silicon, and mercury

SOURCE: Soveshchaniye po khimii perekisnykh soyedineniy. Second, Moscow, 1961. Khimiya perekisnykh soyedineniy (chemistry of peroxide compounds); Doklady* soveshchaniy. Moscow, Izd-vo AN SSSR, 1963, 283-290

TOPIC TAGS: peroxide compound, tin, silicon, mercury, ethyl derivative, organic compound, hydrogen, oxygen, silicon silicon bond, silicon carbon bond

ABSTRACT: The investigation of processes which occur in the reaction of organic derivative elements of the IV group with peroxides in the absence of oxygen has shown that their character is determined to a considerable degree by the nature of the central atom of the element-organic compound. It is assumed that radicals obtained in the homologous decay of peroxides detach hydrogen from the α -carbon atom in tetraethylsilicon and hexaethyldisilane. The silicon silicon bond, as well as the silicon carbon bond, are found to be resistant to homologous disintegration. It is shown in a table that during the reaction of tetraethylsilicon and hexaethyl-

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ACCESSION NR: AT4028345

disilane with peroxide compounds the nature of the latter does not influence the structure of silicon containing products. This certifies the free radical mechanism of the reactions. Peroxide reactions with diethyl-mercury are characterized by the slight precipitation of metallic mercury, the insignificant precipitation of carbon dioxide, and the formation of isomer ethylbenzoin acids during the reaction. In the investigation of reactions of element-organic compounds with peroxides, one has to deal with the diversity free radical, as well as processes occurring in the reaction complexes. It seems that the investigation in this region in the future can render valuable material in the study of the mechanisms of chemical processes. Orig. art. has: 31 formulas and 2 tables.

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii pri gor'kovskom gosudarstvennom universitete im. N. I. Lobachevskogo (Scientific Research Institute of Chemistry at Gorky State University)

SUBMITTED: 13Dec63

DATE ACQ: 06Apr64

ENCL: 00

SUB CODE: CH

NO REF SOV: 008

OTHER: 006

Card 2/2

YEGOROCHKIN, A.N.; KHIKEL', M.L.; PONOMARENKO, V.A.; ZUYEVA, G.Ya.;
SVIREZHEVA, S.S.; RAZUVAYEV, G.A.

Proton magnetic resonance spectra of some substituted germanium
hydrides. Izv. AN SSSR Ser.khim. no.10:1865-1868 0 '63.

(MIRA 17:3)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitet, Institut khimicheskoy fiziki AN SSSR
i Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

RAZUVAYEV, G.A.; ZHIL'TSOV, S.F.; DRUZHKOVA, O.N.; PETUKHOV, G.G..

Oxidation of alkyl organomercury compounds. Dokl. AN SSSR 152
no.3:633-636 S '63. (MIRA 16:12)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete im. N.I.Lobachevskogo. 2. Chlen-korrespon-
dent AN SSSR (for Razuvayev).

VYAZANKIN, N.S.; GLADYSHEV, Ye.N.; RAZUVAYEV, G.A.

Homolytic reactions of tetraethylgermane. Dokl. AN SSSR
153 no.1:104-106 N '63. (MIRA 17:1)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete im. N.I. Lobachevskogo. 2. Chlen-
korrespondent AN SSSR (for Razuvayev).

RAZUVAYEV, G.A.; MINSKER, K.S.; KRONMAN, A.G.; SANGALOV, Yu.A.

Stereospecific effect in the homogeneous free radical polymerization of vinyl chloride in aldehydes. Vysokom.soed. 5 no.11:1615-1619 N '63. (MIRA 17:1)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete imeni Lobachevskogo.

VERTYULINA, L. N.; DOMRACHEV, G. A.; KORSHUNOV, I. A.; RAZUVAYEV, G. A.

Preparation and polarographic behavior of derivatives of
bis-ethylbenzenechromium. Zhur. ob. khim. 33 no.1:285-290
'63. (MIRA 16:1)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete imeni N. I. Lobachevskogo.

(Chromium compounds) (Polarography)

S/079/63/033/002/006/009
D204/D307

AUTHORS: Vyazankin, N.S., Razuvayev, G.A and
D'yachkovskaya, O.S.

TITLE: The reaction of tetraethylsilane and its analogs
with alkyl halides

PERIODICAL: Zhurnal obshchey khimii, v. 33, no. 2, 1963,
613 - 617

TEXT: Compounds Et_4M ($\text{M} = \text{Si, Ge, Sn}$) were treated,
dropwise, with equimolar proportions of iso-PrX ($\text{X} = \text{Cl, Br}$), in
the presence of anhydrous AlCl_3 , at room temperature, over 3-4 hours.
Exothermic reactions took place. The products consisted of Et_3MX
in high yields, and smaller amounts of iso-pentane, ethane, ethylene,
propane, propylene, and butane. The formation of hydrocarbons is
ascribed to the combination of alkyl residues (iso-pentane) and
H-transfer from the Et group of the organoelemental compound to
the iso-propyl radical of the alkyl halide (ethylene and propane).
Hexaethyldisilane was similarly treated dropwise with iso-PrBr, over

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The reaction of ...

S/079/63/033/002/006/009
D204/D307

anh. AlCl_3 , at room temperature, and the mixture was boiled over 3 hours. The products contained pentaethylbromodisilane (PEBD), ethane, ethylene, and propane, the yield of PEBD being 72.2 %. The latter product was converted to decaethyltetradisilane by the reaction with metallic molten Na, under purified N_2 , over 10-12 hrs. There is 1 table.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet imeni
N.I. Lobachevskogo (Gor'kiy State University
imeni N.I. Lobachevskiy)

SUBMITTED: March 28, 1962

Card 2/2

RAZUVAYEV, G.A.; ZATEYEV, B.G.

Thermal decomposition of benzoyl peroxide in phenylcyclohexane.
Zhur.ob.khim. 33 no.2:673-676 F '63. (MIRA 16:2)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete imeni N.I.Lobachevskogo.
(Benzoyl peroxide) (Benzene)

S/0000/63/000/000/0198/0206

ACCESSION NR: AT4028340

AUTHOR: Razuvayev, G. A.

TITLE: Basic directions in research of organic peroxide compounds

SOURCE: Soveshchaniya po khimii perekisnykh soyedineniy. Second, Moscow, 1961. Khimiya perekisnykh soyedineniy (chemistry of peroxide compounds); Doklady* soveshchaniy. Moscow, Izd-vo AN SSSR, 1963, 198-206

TOPIC TAGS: organic peroxide, peroxide, polymerization, self-oxidation, thermal decay, polarographic analysis, benzoil, hydrogen peroxide

ABSTRACT: In the process of thermal decay of many peroxides, free radicals, both of the oxygen and carbon types, are formed. Since the resistance of peroxide to heating varies within very wide limits, the latter may serve as a source of radicals within the corresponding temperature range. Another method of synthesizing organic peroxide is the reaction of different types of organic derivatives with hydrogen peroxide, alkali metal peroxides or organic hydroperoxides. The introduction of groups with different polarity into the benzene rings of benzoil peroxide leads to a still greater effect on the polarity of the solvent by the speed of the process and its character. The asymmetric peroxide of n-methoxy-n-nitrobenzoil decays in

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ACCESSION NR: AT4028340

nitrobenzene eight times faster than in benzoin. The decay velocity increases with the presence of acids and thionyl chloride. A number of different types of syntheses are listed for the practical use of peroxides for synthetic purposes. Peroxides syntheses can be even more diversified by introducing the addition of metal salts into the reaction mixture. Such additions cause changes in the composition of the reaction products. The cause of such changes is the formation of a radical complex with an ion of copper, which is less capable of reaction than the free radical itself and therefore reacts more selectively. Orig. art. has: 1 table.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitat im. N. I. Lobachevskogo
(Gorky State University)

SUBMITTED: 13Dec63

DATE ACQ: 06Apr64

ENCL: 00

SUB CODE: CH

NO REF SOV: 012

OTHER: 036

Card 2/2

S/0000/63/000/000/0198/0206

ACCESSION NR: AT4028340

AUTHOR: Razuvaev, G. A.

TITLE: Basic directions in research of organic peroxide compounds

SOURCE: Soveshchaniya po khimii perekisnykh soyedineniy. Second, Moscow, 1961. Khimiya perekisnykh soyedineniy (chemistry of peroxide compounds); Doklady* soveshchaniy. Moscow, Izd-vo AN SSSR, 1963, 198-206

TOPIC TAGS: organic peroxide, peroxide, polymerization, self-oxidation, thermal decay, polarographic analysis, benzoin, hydrogen peroxide

ABSTRACT: In the process of thermal decay of many peroxides, free radicals, both of the oxygen and carbon types, are formed. Since the resistance of peroxide to heating varies within very wide limits, the latter may serve as a source of radicals within the corresponding temperature range. Another method of synthesizing organic peroxide is the reaction of different types of organic derivatives with hydrogen peroxide, alkali metal peroxides or organic hydroperoxides. The introduction of groups with different polarity into the benzene rings of benzoin peroxide leads to a still greater effect on the polarity of the solvent by the speed of the process and its character. The asymmetric peroxide of *n*-methoxy-*n*-nitrobenzoin decays in

Card 1/2

ACCESSION NR: AT4028340

nitrobenzene eight times faster than in benzoin. The decay velocity increases with the presence of acids and thionyl chloride. A number of different types of syntheses are listed for the practical use of peroxides for synthetic purposes. Peroxides syntheses can be even more diversified by introducing the addition of metal salts into the reaction mixture. Such additions cause changes in the composition of the reaction products. The cause of such changes is the formation of a radical complex with an ion of copper, which is less capable of reaction than the free radical itself and therefore reacts more selectively. Orig. art. has: 1 table.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet im. N. I. Lobachevskogo
(Gorky State University)

SUBMITTED: 13Dec63

DATE ACQ: 06Apr64

ENCL: 00

SUB CODE: CH

NO REF SOV: 012

OTHER: 036

Card 2/2

RAZUVAYEV, G.A.; ZATEYEV, B.G.

Autoxidation of phenylcyclohexene. Zhur.ob.khim. 33
no.3:851-853 Mr '63. (MIRA 16:3)

1. Nauchno-issledovatel'skiy institut khimii pri
Gor'kovskom gosudarstvennom universitete imeni N.I. Lobachevskogo.
(Benzene) (Oxidation)

VYAZANKIN, N.S.; RAZUVAYEV, G.A.; KORNEVA, S.P.

Reducing properties of triethyl tin hydride. Zhur.ob.khim.
33 no.3:1041-1042 Mr '63. (MIRA 16:3)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete imeni N.I. Lobachevskogo.
(Tin organic compounds) (Reduction (Chemistry))

RAZUVAYEV, G.A.; ETLIS, V.S.; GROBOV, L.N.

Reaction of some oxides and thiooxides of alkenes with hydrogen
sulfide. Zhur.ob.khim. 33 no.4:1366-1369 Ap '63. (MIRA 16:5)
(Olefins) (Oxides) (Hydrogen sulfide)

ROMOSLAVSKAYA, L.I.; RAZUVAYEV, G.A.

Syntheses with the aid of free hydroxyl radicals. Part 4: Reaction of methyl ester of n-butyric acid and ethyl ester of propionic acid with Fenton reagent. Zhur.ob.khim. 33 no.6:2021-2027 Je '63.
(MIRA 16:7)

(Butyric acid) (Propionic acid) (Hydroxyl group)

RAZUVAYEV, G.A.; ZATEYEV, B.G.

Possibility of phenyl radical isomerization in benzoyl
peroxide reactions. Dokl.AN SSSR 148 no.4:863-866 F '63.
(MIRA 16:4)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete im. N.I.Lobachevskogo.
(Phenyl group) (Isomerization) (Benzoyl peroxide)

AUTHORS:

Rabinovich, I. B., Tel'noy, V. I., Karyakin, N. V.,
Razuvayev, G. A., Corresponding Member USSR

TITLE:

Thermochemistry of tetraethyl germanium and hexaethyl
germanium

PERIODICAL:

Akademiya nauk SSSR. Doklady, v. 149, no. 2, 1963, 324-326

TEXT: The combustion and formation enthalpies of Et_4Ge and Et_6Ge_2 were determined, and the bond energies of the Ge-C and Ge-Ge bonds in these compounds were calculated. Et_4Ge was synthesized according to a method described previously (K. A. Kocheshkov, Sinteticheskiye metody v oblasti metallorganicheskikh soyedineniy (Methods of synthesis in the field of organometallic compounds); Izd. AN SSSR, no. 5, 1947, p. 11), and was thoroughly purified. Et_6Ge_2 was obtained by reaction of Et_3GeBr with metallic potassium in dry, pure nitrogen atmosphere. The combustion enthalpy was determined by a method described previously (S. M. Skuratov, A. A. Strepikheyev, et al., Uch. zap. Moskovsk. univ., 164, 73 (1953)).

Thermochemistry of tetraethyl germanium ...

S/020/63/149/002/018/028
B117/B186

The following averaged values were found:

$$-\Delta H^{\text{comb.}} \left[(\text{C}_2\text{H}_5)_4\text{Ge} \right] = 1515.6 \pm 1.5 \text{ kcal/mole}$$

$$-\Delta H^{\text{comb.}} \left[(\text{C}_2\text{H}_5)_3\text{Ge} - \text{Ge}(\text{C}_2\text{H}_5)_3 \right] = 2321.0 \pm 2.0 \text{ kcal/mole.}$$

Standard enthalpies of formation, evaporation and atomization for the liquid and gaseous phase of the compounds studied were calculated from the combustion and evaporation enthalpies of the liquids studied and from data published on the formation enthalpy of the combustion products:

Substance	$-\Delta H^{\text{form.}}_{\text{liqu.}}$	$\Delta H^{\text{evap.}}$	$-\Delta H^{\text{form.}}_{\text{g.}}$	$\Delta H^{\text{atpm.}}$
$(\text{C}_2\text{H}_5)_4\text{Ge}$	50.3 ± 1.5	10.1 ± 0.3	40.2 ± 2.0	2542 ± 5
$(\text{C}_2\text{H}_5)_3\text{Ge}-\text{Ge}(\text{C}_2\text{H}_5)_3$	92.9 ± 2.0	14.9 ± 0.5	78.0 ± 2.5	3875 ± 10

From the atomization enthalpy and mean bond energies of the C-C and C-H bonds the averaged values of bond energy of Ge-C in Et_4Ge were found to

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Thermochemistry of tetraethyl germanium ...

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B117/B186

be 58.9 ± 1.5 kcal (error 1 kcal), and of Ge-Ge in Et_6Ge_2 to be 62 ± 5 kcal (error 2 kcal). In this calculation, the mean bond energy of Ge-C was taken to be equal in both compounds. The values found for the mean bond energy of the Ge-C bond indicate that the primary state which limits the rate of the process should be considered the reaction $\text{Ge}(\text{C}_2\text{H}_5)_4 \rightarrow \text{Ge}(\text{C}_2\text{H}_5)_3 + \text{C}_2\text{H}_5$ and not the decomposition to Ge and $4\text{C}_2\text{H}_5$ as stated by R. L. Geddes and E. Mack (Jr., J. Am. Chem. Soc., 53, 4372 (1930). There are 1 figure and 1 table.

ASSOCIATION: Institut khimii pri Gor'kovskom gosudarstvennom universitete im. N. I. Lobachevskogo
(Institute of Chemistry at the Gor'kiy State University imeni N. I. Lobachevskiy)

SUBMITTED: November 15, 1962

Card 3/3

MINSKER, K.S.; FEDOSEYEVA, G.T.; VOROB'YEVA, N.A.; RAZUVAYEV, G.A.

Polymerization of ethylene on a chlorinated mixture of titanium
and aluminum. Dokl. AN SSSR 149 no.6:1351-1353 Ap '63.

(MIRA 16:7)

1. Chlen-korrespondent AN SSSR (for Razuvaev).
(Ethylene polymers) (Catalysts)

RAZUVAYEV, G.A.; BOBINOVA, L.M.

Reactions of methyl titanium trichloride with metallic
mercury and mercuric chloride. Dokl. AN SSSR 150 no.2:
325-327 My '63. (MIRA 16:5)

1. Chlen-korrespondent AN SSSR (for Razuvayev).
(Titanium compounds) (Mercury chlorides)

L 10285-63

EMP(j)/EPF(c)/ENT(m)/BDS-ASD-Pc-4/Pr-4-RM/WW/MAY

ACCESSION NR: AP3000751

S/0020/63/150/003/0566/0569

AUTHOR: Razuvayev, G. A. (Corr. member AN SSSR); Latyayeva, V. N.;
Maly*sheva, A. V.; Kilyakova, G. A.

66

TITLE: New phenyl derivatives of Ti 1

SOURCE: AN SSSR. Doklady, v. 150, no. 3, 1963, 566-569

TOPIC TAGS: phenyl derivatives of Ti, PhTiCl sub 3 and Ph sub 2 Ti formation, decomposition of PhTiCl sub 3, decomposition of Ph sub 4 Ti, thermal stability of Ph sub 2 Ti

ABSTRACT: Phenyl derivatives of Ti have been synthesized for the first time by maintaining the reaction shown in formula (1) of Enclosure at approximately 90C. Of the Ti derivatives, only Ph sub 2 Ti, the first covalent metalloorganic compound of divalent Ti, was isolated in pure form. The formation of PhTiCl sub 3 (I) was confirmed by the following reactions: 1) the reaction shown in formula (2) of Enclosure; 2) decomposition of I to form diphenyl and TiCl sub 3; and 3) decomposition of I in C sub 14-tagged benzene to diphenyl

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L 10285-63

ACCESSION NR: AP3000751

containing no C sup 14. The formation of diphenyl prompted the study of reactions of TiCl sub 4 with varying amounts of Ph sub 2 Hg or PhLi in tetrahydrofuran. Better results were obtained with PhLi. An intense black discoloration was observed at room temperature when the TiCl sub 4/PhLi ratio was 4/1. At -70C thermally unstable orange-red crystals were formed. The assumption that the latter were Ph sub 4 Ti (II) which could not be isolated was confirmed by reaction with HgCl sub 2 as shown in formula (3) of Enclosure. In the formation of II, a black substance was isolated which, after recrystallization in saturated hydrocarbons (n-nonane), formed a black crystalline compound which ignites spontaneously in air. The compound proved to be diphenyl titanium (III) formed by the decomposition of II as shown in formula (4) of Enclosure. Compound III is stable but extremely O sub 2-sensitive and decomposes slowly in a sealed ampoule at 200C into diphenyl and metallic titanium mirror. The composition of III was confirmed by chemical analysis and by its reactions. Whether the structure of III is monomeric or polymeric was not determined. Orig. art. has: 6 formulas.

ASSOCIATION: none

SUBMITTED: 16Feb63

SUB CODE: 00

DATE ACQ: 21Jun63

NO REF SOV: 001

ENCL: 01

OTHER: 005

Card 2/32

L 13705-63

EWP(j)/EPF(c)/EWT(m)/BDS ASD Pc-4/Pr-4 RM/WW

ACCESSION NR: AP3003513

9/0020/83/151/001/0110/0113 66

AUTHORS: Razuvaev, G. A. (Corr. member, AN SSSR); Minaker, K. S.; Sangalov, Yu. A.; Grayevskiy, A. I.

TITLE: Initiating low-temperature polymerization of vinyl chloride with triethylaluminum by co-catalytic action of oxygen

SOURCE: AN SSSR. Doklady, v. 151, no. 1, 1983, 110-113

TOPIC TAGS: low-temperature polymerization, vinyl chloride, triethylaluminum, oxygen, diethoxyethylaluminum, syndiotactic macromolecule

ABSTRACT: The induction period of low-temperature (-30°C) polymerization of vinyl chloride with triethylaluminum and oxygen depends on the oxidation of triethylaluminum. A study of its 3 oxidation stages indicated high polymerization in the 2nd stage (diethoxyethylaluminum) but no or very small polymerization in the 1st (diethylaluminum ethoxide) and 3rd (diethoxyaluminum peroxyethyl) stages. PVC yield depends on solvent, increasing with solvents in which it is soluble, e.g. in dichlorethane or in halobenzene yield is 5 times greater than in aliphatic or aromatic hydrocarbons, in which PVC is not too soluble. In oxygen-containing solvents PVC yield is lowered: the electron-donor agents complex with TEA,

Card 1/2

L 13705-63

ACCESSION NR: AP3003513

competing with O for the catalyst. The PVC obtained by TEA-O catalyzed low-temperature polymerization differs from normal atactic and from highly crystalline macromolecules, almost similar to the syndiotactic PVC obtained by free-radical polymerization at analogous temperature. Orig. art. has: 3 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 25Dec62

DATE ACQ: 30Jul63

ENCL: 00

SUB CODE: CH

NO REF SOV: 005

OTHER: 004

Card 2/2

L 18961-63 EPR/EWP(j)/EPF(c)/EWT(m)/BDS Ps-4/Pc-4/Pr-4 RM/WW/MAY/JFW/

JXT(IJP)

ACCESSION NR: AP3006592

S/0020/63/151/006/1326/1328

77
73

AUTHORS: Vyazankin, N. S.; Mem., AS, SSSR, Razuwayev, G. A.; Gladyshev, Ye. N.

TITLE: Bis-(Triethylgermyl)-Mercury, the first organogermanium compound of mercury,
ethane 7

SOURCE: AN SSSR. Doklady*, v. 151, no. 6, 1963, 1326-1328 7

TOPIC TAGS: benzene peroxide, germanium, mercury, organogermanium compound,
bromobenzol

ABSTRACT: Authors formed bis-(triethylgermyl)-mercury and ethane with a yield of 66.5 and 96.8%, respectively, by reacting diethyl mercury with triethyl germanium in a molal ratio of 1:2 in the absence of air at 100 to 120C. Bis-(triethylgermyl)-mercury is a lemon-colored, thermally-stable liquid which can be distilled in nitrogen atmosphere at a low pressure. It is very reactive and, upon contact with oxygen, immediately begins to release mercury. Bis-(Triethylgermyl)-mercury releases heat when reacted with benzene peroxide. It is sensitive to light. The photolysis of bis-(triethylgermyl)-mercury with

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L 18961-62
ACCESSION NR: AP3006592

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carbon tetrachloride and bromobenzol are also described. This product may be found to be a model substance in the study of the free-radical chain processes initiating the decomposition of organo-elemental compounds. The orig. art. has: 5 formulas.

ASSOCIATION: Nauchno-Issledovatel'skiy institut khimii Pri Gor'kovskom Gosudarstvennom Universitete im. N. I. Lobachevskogo (Scientific research institute of chemistry, State University)

SUMMITTED: 4Jul63

DATE ACQ: 27Sep63

ENCL: 00

SUB CODE: CH

NO REF SOV: 007

OTHER: 006

2/2

Card

SVETOZARSKIY, S.V.; FELLER, K.L.; SAMITOV, Yu.Yu.; ZIL'BERMAN, Ye.N.;
RAZUVAYEV, G.A.

Formation of furan derivatives by autocondensation of cyclohexanone.
Izv.AN SSSR. Ser.khim. no.1:121-126 Ja '64. (MIRA 17:4)

RAZUVAYEV, G.A.; STEPNIK, L.P.; MITROFANOVA, Ye.V.

Reactions of aluminum triisopropylate with acyl peroxides. Izv. AN
SSSR. Ser.khim. no.1:162-164 Ja '64. (MIRA 17:4)

1. Nauchno-issledovatel'skiy institut pri Gor'kovskom gosudarstvennom
universitete im. N.I.Lobachevskogo.

ACCESSION NR: AP4025005

S/0062/64/000/003/0426/0430

AUTHOR: Razuvayev, G. A.; Dodonov, V. A.; Etlis, V. S.

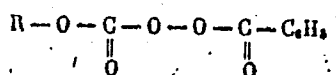
TITLE: Perbenzoylalkyl(aryl)carbonates.

Communication 1. Polymerization initiators for vinyl compounds.

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no. 3, 1964, 426-430

TOPIC TAGS: perbenzoylalkylcarbonate, perbenzoylarylcarbonate, synthesis, polymerization initiator, vinyl chloride, methylmethacrylate, polymerization, mixed acyl peroxide, benzoate radical, alkyloxy radical, phenoxy radical, perbenzoylmethylcarbonate, perbenzoylcyclohexylcarbonate, activation energy, polymerization rate

ABSTRACT: Mixed acyl peroxides were synthesized; these will decompose thermally to form simultaneously, benzoate and alkyloxy radicals and thus act as effective polymerization initiators for vinyl compounds. Perbenzoylalkyl(aryl)carbonates of the general formula



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ACCESSION NR: AP4025005

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete im. N. I. Lobachevskogo (Scientific Research
Institute for Chemistry at the Gorkovsk State University)

SUBMITTED: 08Oct62

DATE ACQ: 17Apr64

ENCL: 00

SUB CODE: GC

NO REF SOV: 001

OTHER: 003

Card 3/3

RAZUVAYEV, G.A.; DODONOV, V.A.; MORYGANOV, B.N.

Peroxybenzoylalkyl (aryl) carbonates. Report No.2: Reactions of
peroxybenzoylcyclohexyl carbonate with some organic solvents.
Izv. AN SSSR. Ser.khim. no.3:430-435 Mr '64. (MIRA 17:4)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete im. N.I.Lobachevskogo.

ETLIS, V. S.; SINEOKOV, A. P.; RAZUVAYEV, G. A.

Interaction of ethylene oxide with methyl isothiocyanate. Izv
AN SSSR Ser Khim no. 4:737-738 Ap '64. (MIRA 17:5)

KHIDEKEL', M. L.; SHUB, B. R.; RAZUVAYEV, G. A.; ZADOROZHNYI, N. A.;
PONOMARENKO, V. A.

2,4,6-tris (trimethylsilyl)-1-phenoxy, a monomer radical relatively
resistant to oxygen. Izv AN SSSR Ser Khim no. 4:776 Ap '64.
(MIRA 17:5)

1. Institut khimicheskoy fiziki AN SSSR, Gor'kovskiy gosudarstvennyy universitet im. N. I. Lobachevskogo i Institut organicheskoy khimii im. N. D. Zelinskogo AN SSSR.

MAZVAYEV, G.A.; YEGOROVICHIN, A.N.; KHISHKEL', R.L.; MERONOV, V.P.

Proton magnetic resonance spectra of some vinyl silicon
compounds. Izv. AN SSSR Ser. khim. no. 5:928-930 My '64.
(MIRA 17:6)

1. Nauchno-issledovatel'skiy institut khimii Gor'kovskogo
gosudarstvennogo universiteta. Institut khimicheskoy fiziki
AN SSSR i Institut organicheskoy khimii im. N.D. Zelinskogo
AN SSSR.

YEGOROVCHIN, A.N.; KHIDEKEL', M.L.; RAZUVAYEV, G.A.; MIRONOV, V.F.;
KRAVCHENKO, A.L.

Proton magnetic resonance spectra of some metallo-organic
compounds of silicon and germanium. Izv. AN SSSR Ser. khim.
no.7:1312-1313 J1 '64. (MIRA 17:8)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete, Institut khimicheskoy fiziki AN
SSSR i institut organicheskoy khimii imeni Zelinskogo AN SSSR.

YEGOROVICH, N.; KHIDKEI', M.I.; RAZUVAYEV, G.A.; PETUKHOV, G.G.
MIRONOV, V.F.

Proton magnetic resonance spectra of some allyl silicon
compounds. Izv. AN SSSR. Ser. khim. no.8:1521-1523 Ag 1964.
(MIRA 17.9)

1. Gor'kovskiy gosudarstvennyy universitet im. N.I.
Lobachevskogo, Institut khimicheskoy fiziki AN SSSR i Institut
organicheskoy khimii N.D. Zelinskogo AN SSSR.

KHILKIN, M.I.; RAZUVAYEV, G.A.; NOVIKOVA, Ye.I.; SMIRNOVA, I.A.;
KHROUSHCH, A.F.

Interaction of 2,4,6-triphenyl-1-phenoxy with solvents.
Izv. AN SSSR. Ser. khim. no.8:1530-1532 Ag '64.

(MIRA 27:9)

1. Institut khimicheskoy fiziki AN SSSR i Ger'kovskiy
gosudarstvennyy universitet im. N.I. Lobachevskogo.

KARPOV, V.V.; KHIIDEKEL', M.L.; GORBUNOVA, L.V.; RAZUVAYEV, G.A.

Steric hindrances and the course of oxidation of some phenols. Izv.
AN SSSR.Ser.khim. no.9:1717-1719 S '64. (MIRA 17:10)

1. Institut khimicheskoy fiziki AN SSSR i Gor'kovskiy gosudar-
stvennyy universitet im. N.I.Lobachevskogo.

ETLIS, V.S.; SINEKOV, A.P.; RAZUVAYEV, G.A.

Reaction of alkene oxides with methylisothiocyanate. Izv. AN
SSSR Ser. khim. no.11:2051-2055 N '64 (MIRA 18:1)

1. Gor'kovskiy gosudarstvennyy universitet.

RAKHVATEV, G.A.; ABAKUMOV, G.A.; PESTUNOVICH, V.M.

Structure of the protonated ion-radical of tetraphenyl
hydrazinium. Zhur. strukt.khim. 5 no. 2:307-309 Mr-Apr '64.
(MIRA 17:6,

1. Gor'kovskiy gosudarstvennyy universitet imeni N.I.Lobachevskogo.

MINSKER, K.S.; SANGALOV, Yu.A.; GRAYEVSKIY, A.I.; RAZUVAYEV, G.A.

Low-temperature polymerization of vinyl chloride in the presence of the
system organoaluminum compound - oxygen. Vysokom.soed. 6 no.2:269-273
F '64. (MIRA 17:2)

SANGALOV, Yu.A.; MINSKER, K.S.; RAZUVAYEV, G.A.

Catalytic activity of the system aluminum - organic compound -
peroxide. Vysokom. soed. 6 no.7:1323-1326 JI '64(MIRA 18:2)

CHERNOVSKAYA, R.P.; LEBEDEV, V.P.; MINSKER, K.S.; RAZUVAYEV, G.A.

Copolymerization of propylene with styrene in the presence
of $\alpha\text{-TiCl}_3 + \text{Al}(\text{C}_2\text{H}_5)_3$. Vysokom. soed. 6 no.7:1313-1317
Jl '64 (MIRA 18:2)

CHERNOVEKAYA, R.P.; MIN KEE, K.S.; RAZUVAYEV, G.A.

Nature of the modifying action of aromatic compounds on the stereospecific polymerization of propylene. Vysokom.sped. 6 no.9:1656-1660 S '64. (MIRA 17:10)

VYAZANKIN, N.S.; RAZUVAYEV, G.A.; BEBENOVA, T.N.

Reactions of tetrapropyl- and tetraisopropyltin with benzoyl peroxide. Zhur. ob. khim. 34 no. 3:1005-1009 Mr '64.
(MIRA 17:6)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete imeni N.I. Lobachevskogo.

VYAZANKIN, N.S.; LAZURVANSKY, G.A.; KONGEVA, S.P.

Interaction of triethyltin hydride with organic derivatives
of tin, mercury, and bismuth. Zhur. ob. khim. 34 no. :277-
279 Ag 1964. (MI-A 1749)

i. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete im. N.I. Lobachevskogo.

BOGUSLAVSKAYA, L.S.; KARTASHOVA, N.A.; SHURYGIN, V.Ye.; RAZUVAYEV, G.A.

Syntheses by means of free hydroxyl radicals. Part 6: Interaction of hydroxyl and cyclohexyloxy radicals with n-propyl acetate and toluene. Zhur. ob. khim. 34 no.9:3081-3085 S '64.

(MIRA 17:11)

RAZUVAYEV, G.A.; SOROKIN, Yu.A.

Sandwich complexes. Priroda 53 no.1:29-32 '64.

(MIRA 17:2)

1. Gor'kovskiy gosudarstvennyy universitet im. N.I.Lobachevskogo. 2. Chlen-korrespondent AN SSSR (for Razuvayev).

ACCESSION NR: AP4025006

S/0062/64/000/003/0430/0435

AUTHOR: Razuvayev, G. A.; Dodonov, V. A.; Mory*ganov, B.N.

TITLE: Perbenzoylalkyl(aryl) carbonates. Communication 2. Reaction of perbenzoylcyclohexylcarbonate with certain organic solvents.

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no. 3, 1964, 430-435

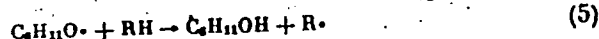
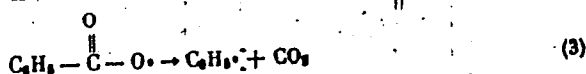
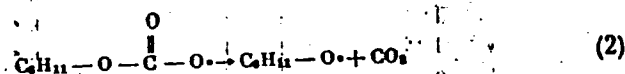
TOPIC TAGS: perbenzoylalkylcarbonate, perbenzoylarylcarbonate, perbenzoylcyclohexylcarbonate solvent complex, decomposition, kinetics, activation energy, thermal reaction, benzoate radical cyclohexyloxy radical, reactivity

ABSTRACT: The kinetics of the decomposition of perbenzoylcyclohexylcarbonate (PCC) in benzene and in n-heptane were studied. The decomposition reaction is a first order reaction. The activation energy (E) of the disintegration of PCC in benzene and n-heptane is 23.5 and 25.8 kcal/mol. The thermal reaction of PCC in benzene, n-heptane and isopropanol was studied; the reaction products were identified and determined quantitatively. Preliminary investigation showed reaction in CHCl_3 and CCl_4 was complex with evolution of HCl , hence this was pursued no further. PCC decomposition results in the following radical formation

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ACCESSION NR: AP4025006

and decomposition:



The benzoate and cyclohexyloxy radical react with solvents almost as well as radicals obtained by the decomposition of symmetrical peroxides such as benzoyl peroxide or dicyclohexylperoxydicarbonate (activation energy about 30 kcal/mol). "V. N. Fofanova took part in the experimental work." Orig. art. has: 6 equations, 3 figures and 1 table.

Card 2/3.

ACCESSION NR: AP4025006

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete im. N. I. Lobachevskogo (Scientific Research
Institute of Chemistry at the Gorkiy State University).

SUBMITTED: 08Oct62

DATE ACQ: 17Apr64

ENCL: 00

SUB CODE: GC,OC

NO REF SOV: 009

OTHER: 004

Card

3/3

L 36474-65 EPP(c)/EMP(j)/EWT(m)/T Pc-4/Pr-4 RM

ACCESSION NR: AP5010054

UR/0204/64/004/004/0572/0575

AUTHOR: Bazuvayev, G. A.; Minsker, K. S.; Fedoseyeva, G. T.

TITLE: Catalytic systems for the polymerization of ethylene

SOURCE: Neftekhimiya, v. 4, no. 4, 1964, 572-575

TOPIC TAGS: catalysis, polymerization, ethylene, aluminum, titanium, chloride, polyethylene plastic, polymerization kinetics, macromolecular chemistry

Abstract: The polymerization of ethylene was studied on catalytic systems produced by the reaction of titanium trichloride with chlorinated aluminum or by joint chlorination of titanium and aluminum in benzene. A mixture of titanium trichloride and aluminum chloride was inactive in the polymerization of ethylene; activation of the catalyst by metallic aluminum permitted production of high-molecular polyethylene in satisfactory yields. The direction of the conversion of ethylene, toward polymerization or toward alkylation, was found to depend substantially on the Cl/Al molar ratio in the heterogeneous phase of the catalyst. At molar ratios below 2.8, the process went primarily to polymerization, and the catalyst possessed anionic activity. At a ratio higher than 2.8, the catalyst manifested cationic activity, and the system became essentially alkylating. The kinetics of the polymerization of ethylene on the chlorinated mixture of metals broke down

Card 1/2

L 36474-65

ACCESSION NR: AP5010004

into three distinct periods: a brief increase in the rate, constant polymerization rate at a maximum value, then a decrease in the polymerization rate, evidently due to blocking of part of the active sites by the polyethylene formed. The apparent activation energy of the polymerization of ethylene was 12.8 kcal/mole. The properties of the polymer obtained were analogous to the properties of polyethylene produced in the presence of a Ziegler catalyst $[(C_2H_5)_3Al + TiCl_4]$. Orig. art. has 2 graphs and 2 tables.

ASSOCIATION: none

SUBMITTED: 06May63

ENCL: 00

SUB CODE: 00, 00

NO REF SOV: 000

OTHER: 002

JPRS

Card 2/2

RAZUVAYEV, G. A.; KARTASHOVA, N. A.; BOGUSLAVSKAYA, L. S.

Reaction of peroxydicarbonates with solvents catalyzed by ferrous chloride. Direct introduction of cyclonexyloxycarboxy groups into aromatic rings. Zhur. ob. Khim. 34 no.6:2093-2094 Je '64. (MIRA 17:7)

VYAZANKIN, N.S.; RAZUVAYEV, G.A.; GLADYSHEV, Ye.N.

Homolytic reactions of organogermanium and organosilicon compounds of mercury. Dokl. AN SSSR 155 no. 4:830-832 Ap '64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete im. "I. Lobachevskogo. 2. Chlen-korrespondent AN SSSR (for Razuvayev)

ACCESSION NR: APh040486
S/0190/64/006/006/1068/1071

AUTHORS: Razuvayev, G. A.; Lapshin, N. M.; Khidekel', M. L.; Mory*ganov, B. N.;
Ryabov, A. V.

TITLE: Nitrogen containing peroxides as polymerization initiators of vinyl
monomers. 3

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 6, 1964, 1068-1071

TOPIC TAGS: vinyl monomer, methyl methacrylate polymerization, methacrylic acid
polymerization, styrene polymerization, acrylonitrile polymerization, polymeri-
zation initiator, nitrogen containing peroxide, phenylperoxycarbamate, phenylperoxy-
carbamate decomposition kinetics

ABSTRACT: The purpose of the present investigation consisted of determining
whether a tertiary butyl radical (located behind the peroxide bridge of the group-
ings N-COOO and NCH₂COO) would affect the superior performance of the N-COOO group
as polymerization initiator. The initiator activities of tert.butyl-N-phenyl-
peroxycarbamate (I), N-tert.butylperoxymethylbenzamide (II), and N,N'-bis-(tert.

Card 1/2

SOV: 001

ENCL: 00

OTHER: 005

ACCESSION NR: AP4040486

butylperoxymethyl)urea(III) on the polymerization of methylmethacrylate, methacrylic acid, styrene, and acrylonitrile were investigated. The polymerization of methylmethacrylate was conducted in block, in the presence of 0.05 mole% of the initiator per mole of the monomer, at 18-60C for initiator (I) and at 60C for initiators (II) and (III). It was found that peroxide (I) was the most effective (in its presence the activation energy was 19.6 kcal/mole). Similar tests with methacrylic acid, styrene, and acrylonitrile confirmed the superior performance of the initiator containing the N-COOO grouping. Additional experiments were conducted on the kinetics of decomposition of (I) in benzene at 60-80C. The decomposition was found to proceed generally according to a first order reaction. The activation energy was estimated as 30.5 kcal/mole. Orig. art. has: 2 charts.

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii Gor'kovskogo gosudarstvennogo universiteta im. N. I. Lobachevskogo (Scientific Research Institute of Chemistry at Gorkiy State University)

SUBMITTED: 10Jul63

DATE ACQ: 06Jul64

ENCL: 00

SUB CODE: GC

NO REF SOV: 001

OTHER: 005

Card 2/2

YEGOROCHKIN, A.N.; KHIIDEKEL', M.L.; PONOMARENKO, V.A.; ZUYEVA, G.Ya.;
RAZUVAYEV, G.A.

Certain regularities in proton magnetic resonance spectra of a
number of germanium compounds. Izv.AN SSSR.Ser.khim. no.2:373-
375 F '64. (MIRA 17:3)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete im. Lobachevskogo, Instituta khi-
micheskoy fiziki AN SSSR i Institut organicheskoy khimii im.
N.D.Zelinskogo AN SSSR.

RAZUVAYEV, G.A.

"Methods in heterorganic chemistry" by S.T.Ioffe, A.M.Nesmelanov.
Reviewed by G.A.Razuvaev. Vest. AN SSSR 34 no. 2:142-143 F 1961.
(MIRA 17-5)

1. G.A. Razuvaev, correspondent AN SSSR.

VYAZANKIN, M.S.; RAZUVAYEV, G.A.; GRADYSHEV, Ye.N.; GRIKOVA, T.G.

First metallo-organic compounds with Si-Si-Hg and Si-Hg-Ge groups. Dokl. AN SSSR 155 no. 5:1108-1110 Ap '64.

(MIRA 17:5)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete im. N.I. Lobachevskogo. 2. Chlen-korrespondent AN SSSR (for Razuvayev).

S/0020/64/154/006/1398/1401

ACCESSION NR: AP4019979

AUTHORS: Razuvayev, G.A. (Corresponding Member); Minsker, K.S.;
Sangalov, Yu.A.

TITLE: Polymerization of some olefine and vinyl monomers in diethyl-
butene-1-yl-1-aluminum (DEBA) in the presence of titanium halides

SOURCE: AN SSSR. Doklady*, v.154, no.6, 1964, 1398-1401, insert fa-
cing p.1329

TOPIC TAGS: polymerization olefine monomer, vinyl monomer, diethyl-
butenealuminum, titanium halide, electrophilic property.

ABSTRACT: The catalytic action of DEBA in a polymerization reaction of
some monomers was studied. The catalytic system on a DEBA base com-
bined with titanium chlorides possesses unusual properties which per-
mit both the polar and nonpolar monomers to be polymerized. Such beha-
vior can be explained by a reduction of its electrophilic properties
(as compared to triethylaluminum), as occurred in the use of $(C_2H_5)_2Al$
 $-OC_2H_5$ or $(C_2H_5)_3Al$ with additions of donor agents. Thus, properties

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ACCESSION NR: AP4019979

of DEBA include both the properties of its hydroxy and halide derivatives. Such a peculiarity of properties of the unsaturated aluminum-organic compound signifies that the catalytic systems, while being active in olefinic polymerization, are also capable of causing polymerization, are also capable of causing polymerization of polar monomers. Orig. art. has: 4 figures, 1 table

ASSOCIATION: none

SUBMITTED: 20Nov63

DATE ACQ: 23Mar64

ENCL: 00

SUB CODE: OH

NR REF SOV: 011

OTHER: 001

Card 2/2

RAZUVAYEV, G.A.; VYAZANKIN, N.S.; MITROFANOVA, Ye.V.

Reactions of benzoyl peroxide with organomercury compounds. Zhur.ob.
khim. 34 no.2:675-679 F '64. (MIRA 17:3)

1. Nauchno-issledovatel'skiy institut pri Gor'kovskom gosudarstven-
nom universitete imeni N.I.Lobachevskogo.

ACCESSION NR: AP4045432

S/0190/64/006/009/1656/1661

AUTHOR: Chernovskaya, R.P., Minsker, K.S., Razuvayev, G.A.

TITLE: Nature of the modifying action of aromatic compounds on the stereospecific polymerization of propylene

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 9, 1964, 1656-1661

TOPIC TAGS: propylene, propylene polymerization, stereospecific polymerization, benzene, naphtriethyl aluminum, alkyl aluminum, thalene, titanium trichloride, polymerization catalyst

ABSTRACT: The effect of naphthalene, a very effective modifier, on the catalyst α - $\text{TiCl}_3 + \text{Al}(\text{C}_2\text{H}_5)_3$ was studied during the stereospecific polymerization of propylene, and the relative propylene polymerization rate ($k_n : k_o$ where k_n and k_o are rate constants in the presence and absence of naphthalene, respectively) was plotted against both C_{10}H_8 concentration and the molar ratio of $\text{Al}(\text{C}_2\text{H}_5)_3 : \text{TiCl}_3$ with a constant TiCl_3 content, with an increasing molar ratio of $\text{Al}(\text{C}_2\text{H}_5)_3 : \text{TiCl}_3$, a smaller amount of C_{10}H_8 is needed to increase the polymerization rate. A plot of the polymerization rate against catalyst concentration and the molar ratio of C_{10}H_8 : catalyst showed that naphthalene

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ACCESSION NR: AP4045432

increases the activity of the catalyst. Two series of experiments were carried out to clarify the role of each catalyst component. In the first series, the concentration of alkylaluminum was varied with a constant TiCl_3 and C_{10}H_8 content; in the other, the amount of TiCl_3 was varied with a constant amount of $\text{Al}(\text{C}_2\text{H}_5)_3$ and C_{10}H_8 . It was found that the variation in the $\text{Al}(\text{C}_2\text{H}_5)_3$: C_{10}H_8 ratio plays a more important role than the variation in the TiCl_3 : naphthalene ratio. An increase in the $\text{Al}(\text{C}_2\text{H}_5)_3$ concentration above a certain value decreases the molecular weight of the polymer, and in the presence of C_{10}H_8 the molecular weight decreases more sharply. The proportion of the isotactic fraction in the polymer obtained in the presence of C_{10}H_8 varies relatively slightly with an increasing concentration of $\text{Al}(\text{C}_2\text{H}_5)_3$. With varying TiCl_3 content in the presence of C_{10}H_8 , the molecular weight of polypropylene remains almost unchanged. This result can be explained by the essential role of the surface electron defects and the impurity crystals in the mechanism of polymerization. Most probably, the system TiCl_3 - $\text{Al}(\text{C}_2\text{H}_5)_3$ - aromatic compound is an equilibrium system in which alkylaluminum, aromatic compound and their complex in solution are adsorbed to the surface of the TiCl_3 . The strength of their bond with the active centers of the TiCl_3 varies. The variation in the activity of the catalyst with the concentration of aromatic

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ACCESSION NR: AP4045432

compounds is discussed in detail. As expected, in experiments with $C_{10}H_8$ in the range of maximum catalytic activity, the degree of stereoregulation is lower than that found in parallel experiments without naphthalene. On the other hand, for varying $TiCl_3$ content, an increase in the amount of $TiCl_3$ at a constant concentration of $Al(C_2H_5)_3$ and $C_{10}H_8$ (1.56 mole/liter) leads to disproportionation of the activating portion of naphthalene. With a decrease in the $TiCl_3$ content, the activity of the modified catalyst decreases. The concentration of very active centers increases more slowly than the total $TiCl_3$ content. Thus, the variation in the relative rate of polymerization depending on the molar ratio $Al(C_2H_5)_3 : TiCl_3$ is smoother than that due to a varying concentration of $Al(C_2H_5)_3$ at a constant amount of $TiCl_3$. When experimental data for coarsely dispersed $TiCl_3$ ($S=12\text{ m}^2$) and $TiCl_3$ ground in a vibration mill ($S = 18\text{ m}^2$) were compared, it was found that the position and size of the rate extremes and the other characteristics of the process depend on the individual specimens of $TiCl_3$ employed. Orig. art. has: 6 figures.

ASSOCIATION: none

SUBMITTED: 02Nov63

ENCL: 00

SUB CODE: OC, MT

NO REF SOV: 008

OTHER: 007

Card 3/3

VYAZANKIN, N.S.; GLADYSHEV, Ye.N.; KORNEVA, S.P.; RAZUVAYEV, G.A.

Disproportionation of hexaethylgermane. Zhur. ob. khim. 34
no. 5:1645-1647 My '64. (MIRA 17:7)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete imeni Lobachevskogo.

RAZUVAYEV, G.A.; PETUKHOV, G.G.; GALIULINA, R.F.; SHABANOVA, N.N.

Dyphenylzinc reactions studied by isotopic and spectrometric
methods. Zhur. ob. khim. 34 no.11:3812-3815 N '64
(MIRA 18:1)

STERN, Y.S.; LEBKOV, A.P.; RABOVAYEV, G.A.

Reaction of alkene oxides with isothiocyanates. Part 1.

Dokl. Akad. Nauk SSSR 241 no.12:4018-4022 D 102 (1979) (1979) 12:1)

Reactions of alkene oxides with isothiocyanates. Part 2: Synthesis and properties of 2-phenylimino-1-thio-3-oxalane. Ibid.: 4090-4092

RAZUVAYEV, G.A.; ZATEYEV, B.G.; MYAKOV, V.N.

Possibility of isomerization of a phenyl radical in free radical reactions of diphenylmercury. Dokl. AN SSSR 154 no.1:164-165 Ja'64. (MIRA 17:2)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete im. N.I. Lobachevskogo. 2. Chlen-korrespondent AN SSSR (for Razuvayev).

RAZUVAYEV, G.A.; ZHIL'TSOV, S.F.; DRUZHKOVA, O.N.; PETUKHOV, G.G.

Interaction of diisopropylmercury with chloroform and
carbon tetrachloride. Dokl. AN SSSR 156 no. 2:393-395
My '64. (MIRA 17:7)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete imeni N.I.Lobachevskogo.
2. Chlen-korrespondent AN SSSR (for Razuvayev).